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EXAMINER	
CARTER III, ROBERT E	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,055	VERHAEGH, WILHELMUS	
	Examiner	Art Unit	
	Robert E. Carter	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6,10-15,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-15 and 18* is/are allowed.

6)☒ Claim(s) *3-6, 10, 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The RCE filed on 01/09/2008 has been entered and considered by examiner.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 19 recites the limitation "to perform the method as defined in claim 10" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Independent claim 10 is an apparatus, and contains no method. It is suggested that claim 19 be amended to depend upon method claim 18, which would overcome the 35 U.S.C. 112 second paragraph rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 3-6, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatakeyama et al. (Japanese publication # 09-330175).

As for claim 10, Hatakeyama et al. (Figs. 5, 20) discloses:

A data processing device enabling a user to input characters (Paragraph [0007]), *the device comprising:*

a touch-sensitive member (240) (Paragraph [0008]) *arranged to function as a virtual keyboard* (430) (Paragraph [0013]),

said member including touch sensors (each lattice point on the grid) *for detecting a plurality of touched zones* (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) *on said member* (Paragraph [00081), *the touch sensors sensing a force of at least one finger on the touch-sensitive member* (Paragraph [0008]);

a stroke recognition means which recognizes a key stroke by analyzing a relative position of a zone touched by a finger causing a higher force (second pressure range) *on the touch-sensitive member relative to positions of zones touched by other fingers with a lower force* (first pressure range), *such that the key stroke is determined by the relative position of the higher forced touched zone relative to the lower force touched zones rather than by location on the touch-sensitive member* (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

As for claim 3, Hatakeyama et al. teaches:

wherein the at least one touch sensor is further arranged to determine a parameter of a respective one of the touched zones, said key allocation means being arranged to allocate the reference keys having a size and/or form on said touch-sensitive member depending on said parameter of the respective detected zone (Paragraphs [0085]-[0088]).

As for claim 4, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate said other keys having a size and orientation on said touch-sensitive member depending on relative locations of the detected touch sensitive zones (Paragraphs [0085]-[0088]).

As for claim 5, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate four or eight reference keys (Fig. 5 shows 8 fingers being detected corresponding to the eight keys of the home position) *upon detecting four fingers of the user's left hand and/or four fingers of the user's right hand touching the touch-sensitive member* (Paragraphs [0080]-[0081]).

As for claim 6, Hatakeyama et al. teaches:

wherein said virtual keyboard has a QWERTY-type layout (Paragraph [0080]).

As for claim 19, Hatakeyama et al. teaches:

A computer-readable medium with instructions that are executed on a program computer to perform the method as defined in claim 10 (Paragraph [0001]).

3. Claims 11-12, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al. (US Patent # 7,042,442)

As for claim 11, Hatakeyama et al. discloses:

A data processing device for enabling a user to input characters, the device comprising:

a touch-sensitive member (240) *arranged to function as a virtual keyboard* (430) (Paragraphs [0008], [0013]),

said member including sensors (each lattice point on the grid) *for detecting touched zones* (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) *on said member and for sensing a force of at least one finger on the touch-sensitive member* (Paragraph [0008]), *the sensors being configured to identify a finger causing a force on the touch-sensitive member higher than the other fingers when more than one finger touches said member* (Paragraph [0008]);

a key allocation means for allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) *of the virtual keyboard to respective zones on said member in response to said detection of touched zones* (Paragraph [0082]); *and*

a key stroke recognition means configured to recognize a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) *with respect to a position of at least one other zone* **previously** *touched with a lower force* (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with

respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Hatakeyama et al. does not teach analyzing a position based on at least one other zone concurrently touched with a lower force.

In the same field of endeavor (i.e. virtual keyboards) Kanevsky et al. discloses a virtual keyboard which continually monitors the hand and finger positions and moves the keyboard to maintain the relationship between certain keys and certain fingers (Col. 6, lines 17-44).

This idea of maintaining of relationship between particular keys and particular fingers can be easily combined with Hatakeyama et al. by performing the steps to allocate the reference keys (Paragraph [0082]) repeatedly to adjust the location of the reference keys, and hence the entire keyboard, to match the location of the user's hands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of maintaining of relationship between particular keys and particular fingers disclosed in Kanevsky et al. in the touch-sensitive keyboard of Hatakeyama et al. to prevent the user from loosing their basic hand positions (Kanevsky et al., Col. 6, lines 24-30).

As such, combining Hatakeyama et al. with Kanevsky et al. teaches:

a key stroke recognition means configured to recognize a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) *with respect to a position of at least one other zone concurrently touched with a*

lower force (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Modifying Hatakeyama et al. with Kanevsky et al. teaches repeatedly allocating the reference keys and determining the location of the other keys from the reference keys, including during the time period when another key was pressed with a force in the second pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers concurrently placed on the keyboard with a force in the first pressure range).

As for claim 12, Hatakeyama et al. teaches:

wherein said at least one zone with the lower force corresponds to at least one of said reference keys (Paragraph [0081], the position of any of the four fingers of each hand as initially placed on the keyboard with a lower force identifies a reference key touched with a lower force).

As for claim 15, Hatakeyama et al. teaches:

wherein said touch-sensitive member further comprises:

a display means arranged to display a representation of at least one reference key and/or other key of the virtual keyboard (Paragraph [0081]).

As for claim 18, Hatakeyama et al. teaches:

A method enabling a user to input characters, the method comprising:

a step of detecting touched zones (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) (Paragraph

[0008]) *on a touch-sensitive member* (240) *configured to function as a virtual keyboard* (430), (Paragraph [0008], Paragraph [0013]), *and*

a step of allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) *of the virtual keyboard to respective zones on said member in response to said detection of touched zones* (Paragraphs [0082]-[0083]), *and,*

a step of sensing a force of at least one finger on the touch-sensitive member (Paragraph [0008]), *and*

a step of identifying a finger causing a force (second pressure range) *on the touch-sensitive member higher than other fingers* (first pressure range) *when more than one finger touches said member* (Paragraph [0008]),

and

a step of recognizing a key stroke by analyzing a relative position of the zone touched with the higher force with respect to a position of at least one other zone **previously** *touched with a lower force*, (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Hatakeyama et al. does not teach analyzing a position based on at least one other zone concurrently touched with a lower force.

In the same field of endeavor (i.e. virtual keyboards) Kanevsky et al. discloses a virtual keyboard which continually monitors the hand and finger positions and moves the keyboard to maintain the relationship between certain keys and certain fingers (Col. 6, lines 17-44).

This idea of maintaining of relationship between particular keys and particular fingers can be easily combined with Hatakeyama et al. by performing the steps to allocate the reference keys (Paragraph [0082]) repeatedly to adjust the location of the reference keys, and hence the entire keyboard, to match the location of the user's hands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of maintaining of relationship between particular keys and particular fingers disclosed in Kanevsky et al. in the touch-sensitive keyboard of Hatakeyama et al. to prevent the user from losing their basic hand positions (Kanevsky et al., Col. 6, lines 24-30).

As such, combining Hatakeyama et al. with Kanevsky et al. teaches:

a step of recognizing a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) *with respect to a position of at least one other zone concurrently touched with a lower force* (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Modifying Hatakeyama et al. with Kanevsky et al. teaches repeatedly allocating the reference keys and determining the location of the other keys from the reference keys,

including during the time period when another key was pressed with a force in the second pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers concurrently placed on the keyboard with a force in the first pressure range).

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al. as applied to claims 11-12, 15, and 18 above, and further in view of Gantenbein (IBM Technical Disclosure Bulletin, Vol. 36, No. 11, November 1993 "Soft Adaptive Follow-Finger Keyboard for Touch-Screen Pads").

As for claim 13, Hatakeyama et al. as modified by Kanevsky et al. teaches all the limitations of claim 11.

However, Hatakeyama et al. as modified by Kanevsky et al. does not teach repeatedly allocating at least one of the reference keys.

In the same field of endeavor (i.e. virtual keyboards) Gantenbein discloses: *further comprising:*

a key correction means for correcting a location of at least one of the reference keys by repeatedly allocating at least one of the reference keys (Page 5, lines 1-3, Page 6, lines 2-11, Page 7, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the key correction means of Gantenbein in the

touch-sensitive keyboard of Hatakeyama et al. as modified by Kanevsky et al. to increase the hit success ratio (Gantenbein, Page 7, lines 27-30).

As for claim 14, Gantenbein teaches:

wherein said key correction means functions upon detecting a change of position of at least one of said other fingers (Page 6, lines 2-8).

Response to Arguments

5. Applicant's arguments filed 12/10/2007 have been fully considered but they are not persuasive.

As for claim 10, applicant argues:

"As set forth in the independent claims of the present application, a keystroke is not recognized based on the location on the touch sensitive screen at which the higher force is applied. Rather, the keystroke is recognized by the position of the higher force touching relative to the zones touched by other fingers with lower force. In this manner, when the typist moves or slides one or both hands during typing, the stroke recognition means recognizes the typist's intention and recognizes the correct keystrokes, without the numerous typos which would occur in Hatakeyama. Because claim 10 calls for a different apparatus which achieves different results, it is submitted that claim 10 and claims 3-6 and 19 dependent therefrom distinguish patentably and unobviously over the references of record."

However, the different results achieved by the invention as well as some of the detailed operation of the invention such as claimed in claims 11 and 18 are currently not present in claim 10, and therefore Hatakeyama currently meets all the limitations of 10.

6. Applicant's arguments with respect to claims 11-15 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Claims 11 and 18 are now rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al.

Claims 13 and 14 are now rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al., and further in view of Gantenbein.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Tang (US Patent # 6,525,717) discloses a pressure sensitive acoustical virtual input device.

Bellwood et al. (US Publication # 2003/0208324) discloses a pressure sensitive conventional keyboard.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert E. Carter whose telephone number is 571-270-3006. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

REC